Financial Integration, Trade Integration and Economic Growth in the East African Community

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Abstract		Original Research Article

This study sought to investigate the influence of macroeconomic volatility and trade integration on the relationship between financial integration and economic growth in the EAC member states. Specifically, the study aimed at determining the influence of trade integration on the relationship between financial integration and economic growth in the EAC. To achieve this objective, the following hypothesis was developed: There is no significant intervening effect of trade integration on the relationship between financial integration and economic growth. The study adopted a positivistic research philosophy and casual research design. Diagnostic tests were carried out to meet the requirements for conducting correlation and regression analysis on panel data. These include; Multicollinearity tests, Im- Pesaran-Shit Test (IPS) panel unit root test and Hausman test for fixed effects and random effects models. Descriptive statistics such as the mean, standard deviation, coefficient of variation as well as correlation analysis were conducted as the preliminary statistical analysis. Generalized-two stage least squares instrumental variable regression model (G2SLSIV) was then conducted to test the hypotheses. The findings of the study showed that: there is no significant intervening effect of trade integration on the relationship between financial integration and economic growth. These findings contribute to knowledge in the sense that, the positive and significant correlation between financial integration and economic growth confirms that, an increase in gross capital flows is accompanied by increase in economic growth. It also contributes to knowledge by revealing that, financial deepening contributes positively to financial integration which further contributes to accelerating economic growth. Therefore, the study is useful to the governments of respective member states in formulating policies aimed at achieving similarity in economic structures and ensuring the quality of institutions. The study culminates with acknowledging the limitations encountered and provides suggestions for further research.

Keywords: Financial integration, economic growth, Diagnostic tests, Trade Integration and Economic.

INTRODUCTION

Background to the Study

International financial integration occurs when exchange controls are removed and the capital account is freed to allow financial resources to flow freely in and out of the country. With the increased degree of international financial integration around the world, many countries especially developing countries are now trying to remove cross-border barrier and capital control, relaxing the policy on capital restrictions and deregulating domestic financial system. Trichet (2005) argues that, financial integration fosters financial development, which in turn creates potential for higher economic growth. Financial integration enables the realization of economies of scale and increases the supply of funds for investment opportunities. The actual integration process also stimulates competition and the expansion of markets, thereby leading to further financial development. In turn, financial development can result in a more efficient allocation of capital as well as a reduction in the cost of capital. At the same time, financial integration is blamed for increasing a country's vulnerability to international financial crises, which tend to occur during periods of sudden reversals in international capital flows.

The conceptualization of this study was based on the following theories; Hegemonic Stability Theory, optimum currency area, purchasing power parity theory, customs union theory and the new economic integration theory. Heather, *et al.*, (2004) argues that, within the hegemonic stability framework, trans-border integration

is driven and shaped by powerful states rather than by forces endogenous to markets.

The concept of purchasing power parity contends that, prices of similar goods ought to be the same in different currencies or that exchange rate changes should offset international differences in price movements or inflation rates (Rogoff, 1996). The originators of the Optimum Currency Area (OCA) define a common currency area in terms of the extent of trade and factor mobility. Mundell (1961), McKinnon (1963), and Kenen (1969) seek to show that an economy's characteristics should be a determinant of its exchange-rate regime. Fama (1970) first defined the term efficient market as one in which security prices fully reflects all available information. The market is efficient if the reaction of market prices to new information should be instantaneous and unbiased. The presence of a hegemon, prices being similar, having a single currency and markets being efficient would lead to more integrated markets, less volatility and hence increased economic growth.

The objective of the East African Community (EAC) is inspired by the interest of the member states of Burundi, Uganda, Rwanda, Kenya and Tanzania to improve the standard of living of the population. This is to be achieved through increased competitiveness, value addition in production, trade and investment. It is through improving the standard of living of its people that, sustainable development of the envisaged economic bloc can be promoted. EAC sees regional financial cooperation as a means of promoting intra-regional trade and exploiting economies of scale by pooling small and fragmented domestic markets to support industrialization (Kasekende and Ng'eno, 2000).

Theoretical analysis of determinants of economic growth is based on both the neoclassical and endogenous growth theories. The neoclassical growth theories, follows the pioneering work by Solow (1956) and predicts that, in steady-state equilibrium, the level of GDP per capita will be determined by the prevailing technology and the exogenous rates of saving, population growth and technical progress.The theories key assumption is that, technical change is exogenous and that the same technological opportunities are available across countries. This implies that, the steady state growth solely depends on exogenous population growth and exogenous technical progress. The endogenous growth models on the other hand, by assuming non-diminishing returns to the accumulation of broadly defined capital, predict permanent or long-term effects of economic integration (Walz, 1997). That is, the introduction of human capital and if it keeps up with other investment and knowledge flows freely, returns can be sustained and trade patterns can transfer technology. The access to larger technological base through integration arrangements may in turn speed growth. Economic integration is also seen as expanding the consumer base which may also increase the necessary competition and hence mitigate redundancy in research and development required to generate growth. Economic integration may also lead to intersectoral and international reallocation effects or trigger economic geography forces (Krugman, 1991).

Empirical studies reveal that, many factors have been identified as determinants of growth, with various factors attributed for Africa's dismal economic performance. They include poor domestic policies, relatively small sizes of individual economies, geography, colonial legacy, political instability, weak institutions, lack of openness, and inhospitable external environment among other factors. Besides, economic factors such as initial conditions, investments, population growth, human capital development, government consumption, openness, financial development and the political environment among other factors, have been found to determine economic growth in Africa (Collier and O'Connell, 2004; Burnside and Dollar (2000); Bates (2005); Bloom and Sachs (1998) among others).

Research Problem

The concept of international financial integration (or financial integration) refers to the specific links of a country with international capital markets (Prasad *et al*. 2003). In other words, international financial integration can be likened to the opening of domestic financial systems, such as financial markets and institutions and banking systems, to the rest of the world and the internationalization of financial assets and liabilities managed by resident entities. Barro (2001) revealed that, financial instability leads to drops in economic growth. This weak growth is the result of excessive capital inflows and outflows and, more generally, the instability of net financial flows (Prasad *et al.,* 2003; World Bank, 2000) and IMF, 2001). Indeed, financial instability can also impact on the poverty level and have other consequences for the social situation (World Bank, 2000).

The East African Community (EAC) is keen on improving the standard of living of the population through increased competitiveness, value addition in production, trade and investment. Sustainable development of the envisaged economic bloc can be promoted, through the improved standards of living (http://www.statistics.eac). However, the East African Community continues to experience low economic performance mainly attributed to a number of factors. These factors include the countries' inability, like many other African countries, to secure access to larger markets, inherent high intra-country trade costs, lack of an effective framework for regional cooperation and resource pooling and the pressure from development partners pursuing their own foreign policy objectives in the continent (Njoroge, 2010).

As a way of addressing these challenges, the EAC has over the years embarked on widening and deepening the cooperation among member states through the process of regional integration. In pursuit of this goal, the EAC has attached great importance to financial sector development. One of the pillars of this effort as enumerated in Chapter 14 of EAC treaty is the pursuit of financial integration with a view to maximizing the ability of financial sectors to mobilize resources and efficiently allocate them to productive sectors of the region. However, the frequent experience of macroeconomic volatility which is one of the basic features of developing economies has to be managed. This is so because, the experience is professed to have detrimental effects on long term economic growth and development (Calderon and Schmidt-Hebbel, 2008).

Conceptually, the debate on the relationship between financial integration and economic growth is inconclusive given that, empirical studies have yielded inconsistent results. Some indicate a positive relationship (Edison *et al.*, 2002; Blomstrom *et al.*, 1994; Quinn, 1997; Borenzstein, De Gregorio, and Lee, 1998; Alfaro, Chanda, Kalemli-Ozcan, and Sayek, 2003). (Osada and Saito, 2010; Arteta *et al.*, 2001 and Kraay, 1998) show that the effects vary substantially while IMF (2002) indicates a negative relationship. Equally, studies have not clearly indicated the intervening effect of trade integration on economic growth (Krugman, 1993) and Razin and Rose, 1994).

Contextually, studies on how financial integration influences the economic growth of the East African community have fallen short of capturing the intervening effect of trade integration, in this relationship (Njoroge, 2010; Muthoga *et al.*, 2013 and Elly, 2014). These conceptual and contextual gaps lead to the following research question: What is the influence of trade integration on the relationship between financial integration and economic growth in the East African community?

Research Objectives
The general objective of the study was to investigate on the influence of trade integration on the relationship between financial integration and economic growth in the EAC

LITERATURE REVIEW
Empirical Literature Review
In theory, there are various direct and indirect channels through which increased financial flows can enhance growth. The direct channels include augmentation of domestic savings, reduction in the cost of capital through better global allocation of risk, development of the financial sector (Levine, 1996) and Caprio and Honohan (1999), and transfer of technological know-how. The main indirect channels are associated with promotion of specialization (Kalemli-Ozcan, Sorensen, and Yosha, 2003) and

inducement for better economic policies (Gourinchas and Jeanne, 2003).

Edison *et al.*, (2002) examine the relationship between International Financial Integration (IFI) and economic growth data over 20-25 years for 57 countries. Constructing a variety of measures of IFI, the study concluded that the dataset does not support the view that international Financial Integration promotes economic growth after controlling for specific economic, financial, institutional and policy characteristics. However, they note that, international Financial Integration is positively associated with real per capital.

Boyd and Smith (1992) argue that, financial integration in countries with weak institutions and policies, such as weak financial and legal systems, actually induces capital outflows from capital-scarce countries to capital-abundant countries with better institutions. Similarly, empirical studies are inconclusive on the effect of financial integration on growth. Some studies give the result that, FDI inflows, which could arguably be stimulated by an open financial system, are positively associated with economic growth when countries are sufficiently rich, educated or financially developed (Blomstrom *et al.*, 1994). Quinn (1997) shows that, capital account openness is robustly positively correlated with long-run economic growth in 64 countries for 1958 to 1989, whereas Arteta *et al.*, (2001) and Kraay (1998) indicate that, capital account liberalisation is as likely to hurt as to help growth.

There are well-established theoretical explanations suggesting a positive impact coming from the process of progressive financial openness. Nevertheless, in principle, the opposite direction of influence could be also assumed: more dynamic economies, with high expectations of profitable investment activities could attract more (domestic as well as foreign) financial flows (Guiso *et al.*, 2004).

Njoroge (2010) examined the impact of economic integration on growth by constructing an economic integration index based on an average of most favoured nations tariffs and the level of regional cooperation for COMESA, EAC and SADC. The economic integration index developed by the study captured two main aspects that facilitate economic integration. First, it considered trade reforms within a particular trade bloc capturing the various efforts of individual member countries towards freer trade. Second, trade reforms by a particular trade bloc and with the rest of the world, capturing efforts at a trade bloc level to freer trade were considered. Overall findings of the study were that, economic integration had a positive and significant impact on growth.

Osada and Saito (2010), studied the effects of financial integration on economic growth using a comprehensive panel dataset of 83 international countries from 1974-2007. Their study made use of defacto measures of financial integration broadly categorized as stocks of external assets and liabilities. The findings of their study suggest that, the effects of financial openness on economic growth vary substantially depending on the type of external assets and liabilities. The justification Osada and Saito gave for this outcome was that, an increase in external assets may lead to a relocation of production units from the country that owns those assets to other countries.

Another set of empirical studies suggests that, the composition of capital flows determines the effects of financial integration on economic growth (Reisen and Soto, 2001) and Goldberg, 2004). In particular, these studies conclude that, FDI flows tend to be positively associated with output growth in those countries that have a sufficient level of human capital (Borenzstein, De Gregorio, and Lee, 1998) and well-developed domestic financial markets (Alfaro, Chanda, Kalemli-Ozcan, and Sayek, 2003).Other studies focus on the impact of equity market liberalization on the growth rates of output and investment. Bekaert, Harvey, and Lundblad (2001) find that, equity market liberalization induces a significant increase in the growth rate of output while Henry (2000) documents that, it leads to a substantial increase in the growth rate of investment.

IMF (2002) investigated the impact of international financial integration (IFI) on economic growth and assessed whether the IFI-growth relationship depended on the level of economic development and financial development. The study contributed to the existing literature by using new measures of international financial integration that is Foreign Direct Investment (FDI), portfolio, and total capital flows. The study used Generalized-Method-of-Moments (GMM) estimators developed for dynamic panel data. The panel consisted of data for a maximum of 57 countries over the period 1976-2000. The study did not support the view that, international financial integration per se accelerates economic growth even when controlling for particular economic, financial, institutional and policy characteristics.

Muthoga *et al*., (2003) aimed at establishing effects of regional financial integration on economic growth in East African Community (EAC). Conflicting views on the effects of financial integration on economic growth prompted their study. Quantitative and qualitative data between year 2000 and 2009 from the East African community was used. They employed the general method of moments in data analysis. Results showed that, regional financial integration significantly stimulated economic growth of the EAC. The study recommended that, EAC coordinating committee promote effective bank supervision to achieve uniform bank spread, initiate ways of issuance of common bond and develop secondary markets for all financial assets in the region.

Elly (2014) investigated the influence of institutional quality proxied by rule of law and political stability on the relationship between market geography and financial markets segments integration and the Joint effects of market geography and institutional quality attributes on integration of financial markets segments. Structured as a longitudinal study on three equity, five Treasury bill and five interbank markets, the study applied monthly market return and market geographical data for a 14-year period (2000 to 2013). The main study findings revealed that, there are linkages in the money markets and long run integrating relationships amongst the equity markets though perfect and full integration has not been attained. The study establishes that GDP, remoteness, financial sector deepening policy (FSD) and adjacency are statistically significant geographical variables in explaining financial markets segments integration.

Krugman (1993) posits that, the theoretical impact of trade integration on macroeconomic volatility depends greatly on patterns of trade specialization and the nature of shocks. He further argued that, if trade openness is associated with increased interindustry specialization across countries and industry-specific shocks are important in driving business cycles, the result could be a rise in output volatility. If these shocks are highly persistent, then they could increase the volatility of consumption as well.

Razin and Rose (1994) made the contribution that, if increased trade is associated with increased interindustry specialization across countries, which leads to a larger volume of intermediate inputs trade, then the volatility of output could decline. These results indicate that, the impact of trade integration on volatility is also ambiguous in theory. Neither of the two studies above captures the influence of both macroeconomic volatility and trade integration (independently) on economic growth.

Kose and Prasad (2002) found that, both terms of trade shocks and foreign aid flows are particularly important in accounting for highly volatile macroeconomic fluctuations in small states, which seem to exhibit higher degrees of trade and financial openness than do other developing countries. Small states in this study were defined as countries with a population below 1.5 million.

Caporale *et al*., (2009) found a negative relationship between real exchange rate volatility and trade openness for the period 1979 - 2004. Their results show that there is a positive relationship between real exchange rate volatility and financial openness for the

entire sample, which comprises 39 developing countries (20 from Latin America, ten from Asia, and nine from MENA5). These results are similar to Amor & Sarkar (2008). However, the regressions for the three separate regions find different results. For the Asian region, they find that financial openness causes real exchange rates to be more volatile, but REER volatility is mainly due to domestic real shocks, while external shocks play a small role. For the MENA region, they find that financial openness causes the real exchange rate to be less volatile, but REER volatility is mainly caused by monetary and real shocks. For the Latin American region, they find that, external and monetary shocks are the main sources of real exchange rate volatility.

Summary of Literature Review and Research Gaps
The gaps identified from the literature review above relate to conceptualization and contextualization of the variables. Conceptually, the debate on the influence of financial integration on economic growth is inconclusive given that some empirical studies have yielded inconsistent results. Some indicate a positive relationship (Edison *et al,.* 2002) while others show that, the effects vary substantially (Osada and Saito, 2010). Equally, studies have not clearly indicated the effect of trade integration and macroeconomic volatility on economic growth (Krugman, 1993) and Razin and Rose (1994).

Contextually, studies on how financial integration influences the economic growth of the East African community have fallen short of explaining conclusively the role of trade integration in this relationship (Njoroge, 2010).

The Conceptual Framework
A discussion of the dependent, independent, moderating and intervening variables was undertaken in this section to explain the conceptual model. The dependent variable in the study is economic growth of the East African economies. The growth of any economy depends on several macro-economic factors as well as external global factors and international initiatives. Some of the international initiatives are geared towards building regional economic blocs. Such include economic integration, which is categorized into financial integration and trade integration. The study identified financial integration as the independent variable, because when countries are financially integrated, there is faster economic development than when they are not financially integrated.

The study used the ratio of gross capital flows to GDP to measure financial integration. To control for the robustness of the relationship between financial integration and economic growth, the degree of financial deepening in these countries was considered using the M2/GDP ratio (Chowdhury, 2001). M2 is strictly used to measure the degree of financial deepening. The assumption is that an increase in financial deepening would enhance growth. Financial depth was also controlled, using the ratio of private sector credit to GDP. Given that, financial integration may contribute to a faster technological development of the financial sector, the inclusion of this variable permits to separate the direct effect of financial liberalization from the effect mediated by financial depth (De Gregorio and Guidotti (1995), Calderón and Liu (2003)). Most importantly, it has the merit of concentrating exclusively on credits received by the private sector from financial intermediaries, excluding thus credits issued to the public sector and also credits stemming from the central banks.

The study incorporated trade integration as the intervening variable in the relationship between economic growth and financial integration. Empirically, the level of trade between countries explains the nature and degree of the relationship between financial integration and economic growth. In this study, the ratio of imports and exports to GDP was used to measure trade integration. The other indicator of trade; the share of exports in GDP was not considered in this study because it only captures the level of exports and not entire trade by a country.
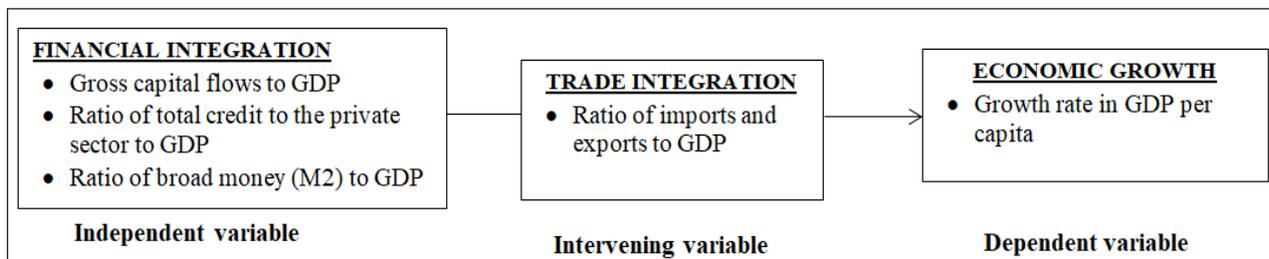
Figure 2.1: The Conceptual Model

Research Hypotheses
This study sought to establish the influence of trade integration on the relationship between financial integration and economic growth in the EAC by testing the following hypothesis.

Hypothesis: There is no significant intervening effect of trade integration on the relationship between financial integration and economic growth.

RESEARCH METHODOLOGY

Introduction

This chapter presents the research methodology applied in this study. It discusses the research philosophy in section 3.2, research design in section 3.3 and the population and sample size in section 3.4. The data collection methods and research procedures are outlined in section 3.6, as section 3.7 discusses the data analysis techniques adopted in the study.

Research Philosophy

To guide the research effort, a researcher requires an appropriate research philosophy. Selection of research philosophy has a choice between four options: positivism, constructivism or interpretivism, advocacy participatory and pragmatism. The main features of these alternatives are shown in Appendix 3. However, the identifiable extreme philosophies are phenomenology and positivism.

The phenomenological paradigm is also known as the qualitative, subjectivist, humanistic or interpretive research paradigm, whereas the positivistic paradigm is alternatively known as the quantitative, objective, scientific, experimentalist or traditionalist research paradigm (Blumberg *et al.*, 2005). A phenomenological research paradigm or mindset is concerned with understanding human behaviour from the researcher's own frame of reference. The act of investigating a reality within a phenomenological context is thus seen as having an effect on that reality.

Researchers using this paradigm essentially focus on the meaning that individuals attach to actual experiences related to a concept or a phenomenon rather than on measuring it (Miller & Salkind, 2002). This further implies that, phenomenologists have to interact personally with the objects (or units of analysis) being investigated. According to this approach, the opinions of experts are sought rather than drawing samples from a population (Collis & Hussey, 2003).

A positivistic paradigm consists of several beliefs about how a researcher can make sense to others, and it is based on the assumption that all researchers are fallible. As such, it is posited that, human behavioural studies should be conducted in the same manner as studies in the natural sciences (Blumberg *et al.*, 2005). It can be stated that, positivism is based on realism, in that, it searches for the truths 'out there'. In positivism studies, the researcher is independent from the study and there are no provisions for human interests within the study. Crowther and Lancaster (2008) inform that as a general rule, positivist studies usually adopt deductive approach, whereas inductive research approach is usually associated with a phenomenology philosophy. Moreover, positivism relates to the viewpoint that researcher needs to concentrate on facts, whereas phenomenology concentrates on the meaning and has provision for human interest.

Researchers warn that "if you assume a positivist approach to your study, then it is your belief that you are independent of your research and your research can be purely objective. Independent means that you maintain minimal interaction with your research participants when carrying out your research." In other words, studies with positivist paradigm are based purely on facts and consider the world to be external and objective.

This study was anchored on a positivism research philosophy because it is based on existing theory and it formulated quantitative hypotheses that were tested. The positivist paradigm allowed for deriving the relationship between financial integration, trade integration, Macro-economic volatility and Economic growth in the EAC. Borrowing from existing literature, theoretical relationships among the four variables above were hypothesized/formulated in form of objectives. To achieve these objectives, appropriate measures for each variable were identified, data was collected and subjected to both descriptive and inferential statistical analysis. Specifically, inferential statistical analysis was conducted to establish the significance of the relationships. Details of the results are presented in chapter five.

Research Design

Three broad classifications of non-experimental research designs are identified as exploratory research design, descriptive research design and causal (explanatory) research designs. The causal survey design seeks to establish the cause and effect relationship between two or more variables. Causal effect (nomothetic perspective) occurs when variation in one phenomenon, an independent variable, leads to or results, on average, in variation in another phenomenon, the dependent variable. However, conclusions about causal relationships are difficult to determine due to a variety of extraneous and confounding variables that exist in a social environment.

This means causality can only be inferred, never proven. If two variables are correlated, the cause must come before the effect. However, even though two variables might be causally related, it can sometimes be difficult to determine which variable comes first and therefore to establish which variable is the actual cause and which is the actual effect. The study sought to establish the relationship between financial integration and economic growth and the influence of trade integration on the established relationship. It was therefore justifiable to use the causal research design in the study because the objectives sought to establish the cause and effect relationships between several variables.

Financial integration is the independent variable which is said to be endogeneous in this study, because it is also influenced by financial depth. In that case, financial depth is included in the study and measured using two instruments; the ratio of M2 to GDP and the ratio of private sector credit to GDP. It is the inclusion of these two instruments which compelled the researcher to apply the instrumented variable regression analysis technique. Specifically, the generalized two-stage least squares instrumental variable regression method was applied. It is two-stage because, the first stage involved the estimation of financial integration (endogeneous/instrumental variable) using the two instruments of financial depth. The second stage is a regression of the original equation, with all of the variables replaced by the fitted values from the first-stage regressions. The coefficients of this regression are the two stage least squares estimates.

Population of the Study

The East African Community (EAC) is the regional intergovernmental organization of the Republics of Burundi, Kenya, Rwanda, the United Republic of Tanzania, and the Republic of Uganda, with its headquarters in Arusha, Tanzania. All these republics are technically referred to as the five member/partner states in the EAC. For inclusivity, the population of interest was all the five partner states in the EAC. Together as an economic bloc, the member states were used as the unit of analysis in this study, simply because, the primary focus was on financial integration and economic growth of the East African community.

EAC was chosen as the context of the study because its primary objective is to develop a single market and investment area in East Africa that is anchored on the twin pillars of internal free trade and liberal trade with the rest of the world. The regional financial cooperation acts as a means of promoting intra-regional trade and exploiting economies of scale by pooling small and fragmented domestic markets to support industrialization (Kasekende and Ng'eno, 2000). The promotion of trade, exploitation of economies of scale as well as industrialization are expected to translate to increased economic growth, in the long run.

Data Collection

The study used secondary data for the period (1963 to 2014). Several landmark initiatives by the East African community have been operationalized over this period. This makes it necessary to consider the entire period for purposes of capturing the impact of all the initiatives undertaken towards the integration of the respective economies.

Annual data on gross capital flows, broad money supply (M2), imports and exports, inflation, exchange rates, Annual GDP figures, growth rate in GDP per capita and total credit to the private sector was retrieved from the respective partner state central bank databases, the national statistical organs, the East African community secretariat, the international monetary fund and the world bank.

Data Analysis and Diagnostic Tests

Measures of central tendency (Arithmetic mean) as well as measures of dispersion (the range, coefficient of variation and standard deviation) were appropriately applied on the indicators to provide a comparative situation analysis for all the five member states. For this analysis, broad money supply, gross capital flows, exports, imports and total credit to the private sector were converted to a common currency (US dollars).

The variables were further subjected to instrumental variable regression analysis and correlation analysis using panel data in order to achieve the objectives. Coefficient of determination, R^2, was computed to assess the strength of fitness of the overall model. The respective individual regression coefficients were tested for statistical significance using the z-test.

However, before estimating the different models to address the study objectives, the researcher first conducted a panel unit root test to establish whether there were any variables in the model that were non-stationary. The Im- Pesaran-Shit Test (IPS) panel unit root test was conducted. The IPS estimates the t-test for unit roots in heterogeneous panels (Wicks-Lim, 2005). The test allows for individual effects, time trends and common time effects. It is based on the mean of the individual Dickey-Fuller (DF) t-statistics of each unit in the panel, and assumes that all series are non-stationary (have unit roots) under the null hypothesis.

In order to choose between fixed effects and random effects models, the test suggested by Hausman (1978) was conducted. The fixed effects model assumes individual heterogeneity, while the random effects model assumes that the variations are probabilistic. The determination of the lag structure entailed selecting the number of lags using an information criterion such as the Schwarz information criterion. Any particular lagged value of one of the variables were retained in the regression, if it was significant according to a z-test or the lagged values of a variable jointly added explanatory power to the model according to the chi-square -test.

Multicollinearity Test

Before carrying out the correlation analysis, multicollinearity test was conducted to establish the possibility and extent of linear dependence between the study variables. The details are provided below.

The results presented in Table 4.3 below shows that, the mean variance inflation factor (VIF) was estimated at 1.47, which is greater than the critical value of 1. It's called the VIF because it estimates how much the variance of a coefficient is "inflated" because of linear dependence with other predictors. Thus, a VIF of 1.47 tells us that the variance (the square of the standard error) of a particular coefficient is 47% larger than it would be, if that predictor was completely uncorrelated with all the other predictors.

As indicated in Table 4.3, no VIFs were greater than 10. This demonstrates absence of strong multicollinearity. In addition, the variables with high VIFs are private bank credit to GDP and M2/GDP which are control variables, and the variables of interest do not have high VIFs. Hence we can safely ignore multicollinearity. Measures of distribution such as skewness and kurtosis which are usually incorporated in the Jargue Bera statistic for normality test were not computed. The reason for omitting these measures was because the assumption of a normally distributed error term is held in estimation under ordinary least squares (OLS). However, this study utilized the generalized two-stage least square (G2SLS) random-effects instrumental variable method (REIVM).

Table 4.3: Variance Inflation Factor (VIF) Test for Multicollinearity

Variable	VIF	1/VIF
Private Bank Credit to GDP	2.02	0.4955
M2/GDP	1.79	0.5589
Trade integration	1.66	0.6016
Gross capital flow to GDP	1.58	0.6313
Mean VIF	**1.47**	

Author: Researcher (2015)

Correlation Analysis

The researcher proceeded to analyze the correlation between each of the variables to ascertain the direction of association and its statistical significance as presented in table 4.4 below, after the discussion of the results.

Financial Integration and Trade Integration

Table 4.2 also shows that, the measure of trade integration, namely, total exports and imports to GDP is positively and statistically significantly related to financial openness (r =0.5960, p <0.05). However, trade integration though positively correlated to economic growth, was not supported by statistical test of significance. These findings support Lane (2000); Heathcote and Perri (2004) assertion that, though not directly linked, it has been proved that, countries which are more open to trade are also more open financially.

Table 4.4: Pairwise Correlation coefficients for the Variables

	Economic growth	Gross capital flows to GDP	Ratio of M2 to GDP	Private Bank Credit to GDP	Exports and imports to GDP
Economic growth	1				
Gross capital flows to GDP	0.2093*	1			
	0.0007				
Ratio of M2 to GDP	0.016	0.3707*	1		
	0.7974	0.0000			
Private Bank Credit to GDP	0.039	0.3606*	0.8333*	1	
	0.5317	0.0000	0.0000		
Exports and imports to GDP	0.0124	0.5960*	0.6487*	0.6224*	1
	0.8419	0.0000	0.0000	0.0000	

*Denotes statistical significance at the 5 percent level

Author: Researcher (2015)

4.5 Unit Root Tests

Before estimating the different models to address the study objectives, panel unit root test was first conducted to establish whether there were any variables in the model that were non-stationary. The Im- Pesaran-shin Test (IPS) panel unit root test was conducted. The IPS estimates the t-test for unit roots in heterogeneous panels (Wicks-Lim, 2005). The test allows for individual effects, time trends and common time effects. It is based on the mean of the individual Dickey-Fuller (DF) t-statistics of each unit in the panel, and assumes that all series are non-stationary (have unit roots) under the null hypothesis. Table 4.5 gives the summary of the unit root test based on the IPS Test.

Table 4.5: IPS Panel Unit Root Tests

	t-bar Statistic		
Variable	Levels	First difference	Levels with time trend
Gross capital flows to GDP (Financial openness)	-1.9586	-9.6123*	-2.8170*
M2/GDP (Financial Deepening 1)	-2.4817*	-9.6148*	-3.5410*
Private Bank Credit to GDP (Financial Deepening 2)	-0.6178	-12.3860*	-2.2957*
Trade Integration	-2.9090*	-10.2997*	-3.5819*
Economic growth	-5.2093*	-10.6814*	-5.8813*

* denotes statistical significance at the 5 percent level

Author: Researcher (2015)

In the test results presented in Table 4.5, gross capital flows to GDP was non-stationary in levels. Similarly, the ratio of private bank credit to GDP was also non-stationary at levels. However, after including a time trend gross capital flows to GDP, private bank credit to GDP and attained stationarity, showing that the three variables were trend stationary. Furthermore, all the non-stationary variables became stationary upon conducting the first difference of the variables.

Table 4.6: Hausman Test for fixed effects and random effects models

Economic Growth	Fixed Effects Model	Random Effects Model	Difference
Financial openness	0.3825	-2.3468	2.7292
Trade Integration	-2.0873	-1.1150	-0.9724
Chi-Square Statistic 0.03 P-Value 0.9851			
Financial openness	56.7677	54.7599	2.0079
Trade Integration	-1.8568	-0.4960	-1.3608
Chi-Square Statistic 0.73 P-Value 0.8665			
Financial openness	58.4319	54.6107	3.8211
Trade Integration	-5.1068	-1.7752	-3.3316
Chi-Square Statistic 2.47 P-Value 0.2913			

Author: Researcher (2015)

Hausman Test for fixed effects and random effects models

Under the Hausman (1978) test, the null hypothesis is that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. The Hausman (1978) test, therefore, checks a more efficient model against a less efficient but consistent model to make sure that, the more efficient model also gives consistent results. A summary of the Hausman (1978) test results are presented in Table 4.6 above.

The test results show that, the Chi-square statistics for the difference were 0.03, 0.73 and 2.47 with corresponding p-values of 0.9851, 0.8665 and 0.2913 respectively. Since the p-values were larger than the critical value of 0.05, hence the null hypothesis that, the differences in the coefficients are not systematic was not rejected. This means that, the preferred model was the random effects model. Hence the empirical results on hypothesis testing presented in chapter five below are based on the random effects model.

5.2 Hypotheses Testing and Discussion of Findings

To achieve the set objective, the following hypothesis was tested.

Hypothesis: Trade integration does not have a significant intervening effect on the relationship between financial integration and economic growth.

This involved testing the main effects of the independent variable (gross capital flow to GDP) and the intervening variable (trade integration). This was done in four steps as indicated in tables 5.5 and 5.6 below.

Table 5.5: Financial Integration, Trade Integration and Economic Growth

G2SLS-random-effects IV regression	Step 1Model 1d	Step 2 Model 2d
	Coefficient (P-Value)	Coefficient (P-Value)
Regressand	Economic growth	Trade integration
Gross capital flow to GDP	4.40 (0.662)	1.07*(0.000)
Trade integration		

G2SLS-random-effects IV regression	Step 1Model 1d	Step 2 Model 2d
Constant	3.3911**(0.066)	0.205 (0.000)
R-squared: Within	0.0398	0.4296
Between	0.3898	0.2559
Overall	0.0438	0.3552
Chi-square	0.04 (0.980)	72.55* (0.000)
Instrumented:	Gross capital flow to GDP	

Author: Researcher (2015)

Table 5.6: Financial Integration, Trade Integration and Economic Growth

G2SLS-random-effects IV regression	Step 3 Model 3d	Step 4 Model 4d
	Coefficient (P-Value)	Coefficient (P-Value)
Regressand	Economic growth	Economic growth
Gross capital flow to GDP		-12.76 (0.948)
Trade integration	0.477 (0.842)	5.14 (0.942)
Constant	3.99*(0.000)	4.42 (0.511)
R-squared: Within	0.001	0.0816
Between	0.2821	0.0088
Overall	0.0002	0.0624
Chi-square	0.04 (0.842)	0.04 (90.98)
Instrumented:	Gross capital flow to GDP	

Author: Researcher (2015)

The results of hierarchical multiple regression predicting economic growth from gross capital flow to GDP are reported in table 1d. The results indicate that, Gross capital flow to GDP (the independent variable) is not significant. The regression of the intervening variable (trade integration) on Gross capital flow to GDP is reported in step 2 model 2d. The results show that, Gross capital flow to GDP is significant, implying that Gross capital flow to GDP (financial integration) affects trade integration. Model 3d presents the regression of trade integration on economic growth. The findings indicate that, the regressor variable is not significant.

Since, more than one (model 1d and model 3d) of these relationships are not significant, we conclude that, mediation is not possible or likely. However, a confirmation test was done in step 4 model 4d in which economic growth was regressed on both Gross capital flow to GDP and trade integration. None of the regressors was found to be significant. These results confirm the finding in step 1 and step 3, that trade integration has no intervening effect on the relationship between financial integration and economic growth.

An Optimum Currency Area (OCA) is a geographical region in which it would maximize economic efficiency to have the entire region share a single currency. The theory was used to explain the intervening effect of trade integration on the relationship between financial integration and economic growth. Proponents of this theory argue that, potential MUs should exhibit similarity in economic structure characterized by high degree of wage flexibility to allow for the adjustment of asymmetric shocks; a high degree of labour mobility; and a high degree of goods and market integration across States. The size and openness of the economy, degree of commodity diversification and fiscal integration are also important to the formation of a successful MU (Mckinnon, 1963; Kenen, 1969; Flemming (1971).

In 2010 the East African Community (EAC) Common Market became operational and introduced the free movement of workers therefore enabling citizens of EAC to work anywhere within the member countries without discrimination. The free movement of workers was to be implemented gradually for a period of 5 years and become fully operational by 2015. Semboja (2005) indicates that, EAC has a challenge of balancing professional labour mobility bearing the inequilibrium level of education in the member states. However, according to Kasekende, (2009), EAC should design incorporated employment-generating macroeconomic rules that create decent job openings for young women and men, who are the majority of the population, hence overcoming the problem of one nation getting more advantage than the other due to education levels and subsequently allowing smooth professional labour mobility. Onduko (2013) sought to study on regional integration and professional labour mobility in East Africa. She concluded that, the impact of the Common Market on free movement of workers has not yet been felt on the ground because there are many challenges and it is not fully implemented yet. Therefore, free movement of workers is not free at all in East Africa. This means that, the degree of labour mobility is not high, hence contributing to the inefficiency of the economic bloc.

Economic structures of the EAC countries are generally diverse in terms of incomes, industrial structures, and social indicators with similarities in few areas. The agricultural sector accounts for 23 to 35 percent of the economy in all five countries. Coffee and tea are major exports for Burundi, Kenya, Rwanda, and Uganda. While Tanzania exports mostly gold, tobacco, and coffee, Kenya exports horticultural products as well. Kenya, Tanzania, and Uganda have more diversified exports in recent years. Regarding the financial sector, although there is some differentiation, domestic debt markets are largely underdeveloped with low savings rates and limited investor base. Wang (2010) presents preliminary evidence suggesting that EAC members are financially less open when compared with advanced economies. Moreover, within the EAC, Kenya is the most financially open economy, followed by Uganda and Tanzania.

Several challenges remain in the form of non-tariff barriers preventing freer movement of goods and services. Roadblocks, delays at border posts, and inconsistent import and export standards are some examples of the existing restrictions clouding prospects for further trade integration within the EAC. Aware of these problems, EAC countries agreed to work together to strengthen customs administration; pursue trade facilitation through harmonized and simplified customs procedures; enhance revenue management by improving EAC tariff regimes and rules of origin; promote custom and trade partnerships; and enhance market access, trade and competitiveness including harmonization of administrative procedures and regulations.

CONCLUSION AND RECOMMENDATIONS
Conclusion of the Study
This study set out to determine the influence of trade integration on the relationship between financial integration and economic growth.

The failure to reject the hypothesis indicates that, trade integration does not have an intervening effect on the relationship between financial integration and economic growth. We conclude that, trade flows do not impact on the relationship between capital flows and economic growth. Therefore, the presence of trade flows does not explain the relationship between capital flows and economic growth.

Recommendations of the study
The diversity of the economic structures of the EAC countries in terms of incomes, industrial structures and social indicators has been blamed for the slow progress in achieving the monetary union as indicated in the discussion of the findings of the hypothesis. It is therefore necessary for the respective member states to work towards making their economic structures as similar as possible. This will help accelerate the pace of integration, particularly, becoming a monetary union.

Contributions of the Study
The findings from this study contribute to the body of knowledge in the area of financial integration, trade integration and economic performance. This section highlights the study findings contribution to knowledge.

The results of this study add to existing knowledge in the area of financial integration, trade integration and economic performance. On the primary relationship between financial integration and economic growth, Gross capital flow to GDP (financial integration) depicted positive and significant correlation to economic growth. This confirms that, an increase in gross capital flows is accompanied by increase in economic growth.

The two measures of financial deepening, namely, ratio of M2 to GDP and private bank credit to GDP are positively and significantly correlated to financial integration. This means that, financial deepening contributes positively to financial integration which further contributes to accelerating economic growth. This relationship confirms the economic theory that, money supply controls economic growth.

Limitations of the Study
There are various challenges that were encountered in the conduct of this study, as a result of the nature of the study, method of analysis, type of data, context as well as time frame. The study was quantitative in nature, narrowing the researcher to focus on only measures that are quantifiable yet a qualitative study or a combination of both would have provided a wider array of variables to be studied, making the research more robust and less biased. A similar challenge was posed by the type of data used. The study applied secondary data only, limiting the degree of the accuracy of the study findings to the accuracy of the data. This explains why reliability and validity tests were not carried out but the researcher used credible sources such as World Bank and IMF to collect the data, in an effort to ensure that, the findings are reasonably reliable.

This study was limited to the East African community as the context, a region that is too small on the global map or even continent wise. Therefore, the findings are basically applicable to the region and can only be relevant on the global map as a foundation for similar but more extensive studies. A bigger context of the study and use of primary data through interviews or questionnaires which captures more information and attributes of different variables would have only been achievable with more financial resources and investing more time on the research.

The consideration of the period 1963-2014, is faced with the limitation of missing data points, as a result of economic stagnation occasioned by war in

some of the member states, although this limitation was taken care of by using balanced panel data. The study was also faced by the limitation of using gross capital flows and trade flows from the formal economy only, leaving out the capital flows from the informal economy, especially the trade flows through the porous border of Somalia into Kenya. The trade flows from the porous borders could be significant enough to impact on the economy and so are the findings of this study.

Suggestions for further research

The conduct of this study has generated some research gaps which can be filled by further studies in the future. First, the context of this study was the East African community over the period 1963-2014, as a continuous duration. Conducting a comparative study between the old and the new EAC may be necessary in establishing whether the inclusion of Rwanda and Burundi, has had any positive impact (catalyzed) on the level of financial integration and economic growth or even reduced macro-economic volatility. Future research could focus on the African union as an economic bloc which has a bigger mandate than the East African community. Africa as an economic bloc is much more significant on the global economy than the East African community, which is a small segment of the continent.

Therefore, focus on enhancing economic integration and economic growth of Africa as an economic bloc is likely to lead to more synergistic benefits to individual countries than the benefits arising from regional integration. A comparative study on the various economic blocs such as ECOWAS and SADC currently existing in Africa is a worthwhile consideration, as well. Such a study is likely to provide useful insights to international investors on which African regions would be top priority areas as investment destinations, based on the established inter-relationships between the four variables analyzed in the current study.

The current study used defacto measures of financial integration and more specifically, gross capital flows. Future studies can apply different indicators of financial integration as well as macro-economic variables and possibly consider using de jure measures of financial integration. Additionally, the use of qualitative data is recommended for purposes of comparing the findings.

Future research could consider measuring the level of capital flows from the informal economy and combine it with the capital flows from the formal economy to arrive at the accurate aggregate value of gross capitals in the economy. The use of such an aggregate value has the likelihood of altering the findings of the current study.

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